AMENDMENTS TO THE CLAIMS

Claims 1 to 38. (Canceled)

Claim 39. (Currently Amended) A method for filling a metal into fine recesses in a surface of a substrate, comprising:

providing a substrate having fine recesses covered with a seed layer in a surface of the substrate;

reinforcing the seed layer by electroplating a surface of the seed layer with contacting the surface of the seed layer in a first plating liquid having ions of a metal and a complexing agent, and then rotating the substrate to drain away the first plating liquid by the action of centrifugal force;

filling said fine recesses with the metal by electroplating a surface of the reinforced seed layer with contacting the substrate in a second plating liquid, and then rotating the substrate to drain away the second plating liquid by the action of centrifugal force;

washing a surface of the metal on the substate with water or washing liquid comprising water; and

removing the metal on an edge portion of the substrate by supplying an etching liquid to a surface of the metal on the edge portion of the substrate;

wherein the washing of the surface of the metal is performed prior to the removing the metal on the edge portion of the substrate, and said first plating liquid has a higher polarization than said second plating liquid.

Claim 40. (Canceled)

Claim 41. (Canceled)

Claim 42. (Currently Amended) The method according to claim [[41]] 39, wherein the reinforcing in the first plating liquid is performed at a first current density and the electroplating in the second plating liquid is performed at a second current density.

Claim 43. (Currently Amended) The method according to claim [[41]] 39, wherein the second current density is higher than the first current density.

Claim 44. (Previously Presented) The method according to claim 39, further comprising measuring a film thickness of the metal on the substrate after the electroplating in the second plating liquid.

Claim 45. (Previously Presented) The method according to claim 39, further comprising annealing the substrate after removing the metal on the edge portion of the substrate.

Claim 46. (Currently Amended) The method according to claim [[38]] 39, further comprising polishing the surface of the metal on the substrate to remove at least a portion of the metal except an interior of the recesses.

Claim 47. (Previously Presented) The method according to claim 46, further comprising forming a protective film on an exposed surface of the metal after the polishing.

Claim 48. (Previously Presented) The method according to claim 39, wherein a pH of the first plating liquid is in a range of 7-14.

Claim 49. (Previously Presented) The method according to claim 39, wherein a concentration of the complexing agent is in range of 0.1-500 g/l.

Claim 50. (Currently Amended) The method according to claim 39, wherein the complexing agent is selected from the group consisting of ethylenediamine tetracetic acid, ethylenediamine, N,N'N",N'-ethylene-di-nitro-tetrapropane-2-ol, pyrophosphoric acid, iminodiacetic acid, diethylenetriamine pentacetic acid, diethylenetriamine, triethylenetetramine, tetraethylenepentamine, diaminobutane, hydroxyethyl ethylenediamine, ~~ethylendiamine~~ ethylenediamine tetrapropionic acid, ethylenediamine tetramethylene phosphonic acid, diethylenetriamine tetramethylene phosphonic acid, and diethylenetriamine pentamethylene phosphonic acid.

Claim 51. (Previously Presented) The method according to claim 39, wherein the first plating liquid further comprising at least one additive selected from the group consisting of organic acids, amines, glycerin, gelatin, heavy metal ions, thiazoles, triazoles, thiadiazoles, imidazoles, pyrimidines, sulfonic acids, and glutamic acids.

Claim 52. (Previously Presented) The method according to claim 42, wherein the first current is a direct current and a current density of the first current is in a range of 0.01 A/dm^2 -30 A/dm^2.

Claim 53. (Previously Presented) The method according to claim 52, wherein the current density of the first current is in a range of 0.1 A/dm^2-3 A/dm^2.

Claim 54. (Currently Amended) The method according to claim 42, wherein the first current is a pulse current ~~and a current density of the first current is in a range of 0.1 A/dm^2-200 A/dm^2~~.

Claim 55. (Previously Presented) The method according to claim 39, wherein a temperature of the first plating liquid is in a range of 10°C-80°C.

Claim 56. (Previously Presented) The method according to claim 39, wherein the second plating liquid comprising an additive for enhancing a leveling property.

Claim 57. (Previously Presented) The method according to claim 39, further comprising measuring a film thickness of the seed layer on the substrate prior to the electroplating in the first plating liquid.

Claim 58. (Currently Amended) The method according to claim 39, wherein an oxidizing agent solution and a silicon oxide film etching agent are supplied simultaneously or alternately to a backside of the substrate while removing the metal ~~layer~~ on the edge portion of the substrate.

Claim 59 .(Previously Presented) The method according to claim 58, wherein the oxidizing agent solution is the same as an oxidizing agent solution contained in the etching liquid.

Claim 60. (Previously Presented) The method according to claim 58, wherein the supply of the oxidizing agent is stopped first to obtain a hydrophobic surface, or the supply of the silicon oxide film etching agent is stopped first to obtain a water-saturated surface.

Claim 61. (Previously Presented) The method according to claim 39, wherein pure water is supplied to replace the etching liquid with pure water and remove the etching liquid after removing the metal layer on the edge portion of the substrate.

Claim 62. (Previously Presented) The method according to claim 61, wherein the substrate is dried by spin-drying after the supply of the pure water.

Claims 63 to 79. (Canceled)